

NASA SBIR/STTR Technologies

A3.08-9070 - A Novel Plasma-Based Compressor Stall Control System

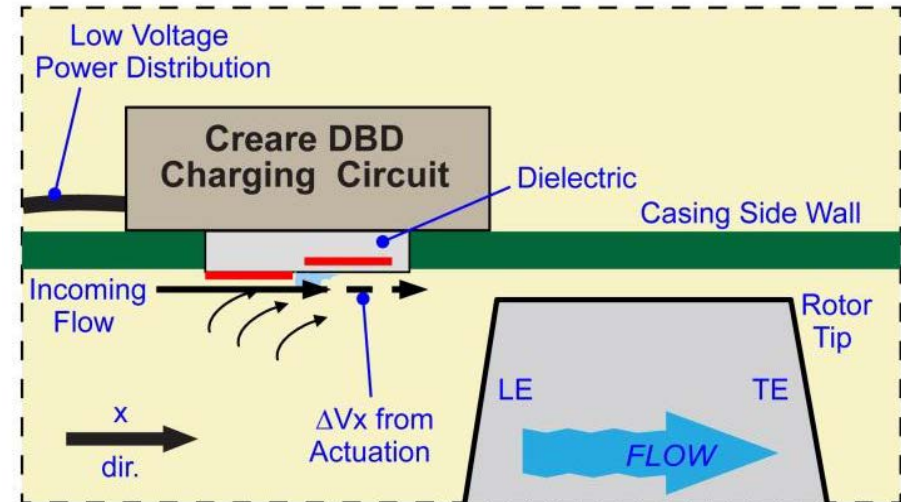


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Identification and Significance of Innovation

Creare proposes the development of an innovative plasma actuator system for compressor flow control which enables:

- More effective plasma actuator thrust generation.
- Effective retrofitting to existing compressor casing side walls.
- Low voltage DC power distribution.
- A modular approach to achieving total power delivery.



Estimated TRL at beginning and end of contract: (Begin: 3 End: 4)

Technical Objectives and Work Plan

- Incrementally improved the plasma actuator system developed and tested in Phase I.
- Transition Phase I technology from airfoil testing to demonstration in research compressor engines.
- Install the DBD actuator devices in flow test facilities and characterize their performance as flow control devices.
- Demonstrate active stall control using the resulting plasma actuator system.

NASA Applications

This technology supports NASA's mission to help improve the performance of commercial aviation through development of advanced gas turbine engine systems. The technology also has the potential for enabling improved gas turbine engine performance for applications as far reaching as Unmanned Aerial Vehicles (UAVs) proposed for extraterrestrial exploration.

Non-NASA Applications

A fully developed active flow control technology for turbomachinery may also prove useful in commercial applications in which separation phenomena are known to cause performance issues, including turbine engines (for both power generation and aircraft use) and aerial vehicles.

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NON-PROPRIETARY DATA